Claims

1. A catalyst system obtainable by the process comprising the following steps:
   a) contacting:
      (i) a partially dealcoholated adduct of formula $MgT_2 \cdot wROH$ wherein T is chlorine, bromine, or iodine; R is a linear or branched C_1-C_{10} alkyl radical, w ranges from 3 to 0.1, being also a non integer number; with
      (ii) an organo-aluminium compound of formula H_eAlU_{3-e} or $H_eAl_2U_{6-e}$, wherein the U substituents, same or different, are hydrogen atoms, halogen atoms, or hydrocarbon radicals containing from 1 to 20 carbon atoms optionally containing silicon or germanium atoms; with the proviso that at least one U is different from halogen, and e ranges from 0 to 1, being also a non-integer number;

   to obtain an adduct of formula (I)

   $$MgT_2 \cdot yAlQ_j(OR)_{3-j} \quad (I)$$

   wherein

   y ranges from 1.00 to 0.05;

   Q has the same meaning of U hydrogen and halogen atoms being excluded;

   R is as described above

   and j ranges from 0.01 to 3.00, being also a non-integer number.

   b) contacting the product obtained from step a) with at least one metallocene compound having titanium as central metal and at least one ligand having a cyclopentadienyl skeleton;

   with the proviso that the metallocene compound of step b) is not previously treated with an organo-aluminium compound of formula H_eAlU_{3-e} or $H_eAl_2U_{6-e}$, or with an alumoxane.

2. The catalyst system according to claim 1 wherein in the partially dealcoholated adduct of formula $MgT_2 \cdot wROH$ T is chlorine; R is a linear C_1-C_{10} alkyl radical; w ranges from 3 to 0.5.

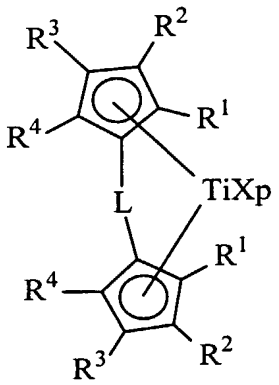
3. The catalyst system according to claims 1 or 2 wherein in the organo-aluminium compound of formula H_eAlU_{3-e} or $H_eAl_2U_{6-e}$, U is a linear or branched C_1-C_{20}-alkyl radical.

4. The catalyst system according to anyone of claims 1 to 3 wherein in the adduct of formula (I)

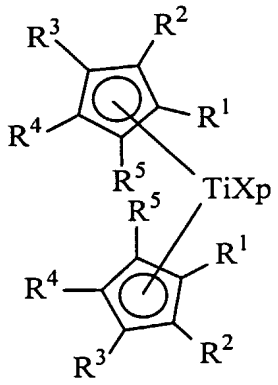
   $$MgT_2 \cdot yAlQ_j(OR)_{3-j} \quad (I)$$

   y ranges from 0.50 to 0.10; j ranges from 2.50 to 2.00.

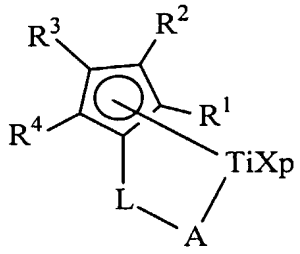
5. The catalyst system according to any one of claims 1 to 4 wherein the adduct of formula (I) has a surface area (BET) higher than 30 m^2/g.
6. The catalyst system according to anyone of claims 1 to 5 wherein the amount of titanocene compound supported on the adduct of formula (I) in step b) is generally between 1000 μmol/g of support and 1 μmol/g of support.
7. The catalyst system according to anyone of claims 1 to 6 wherein the titanocene compounds to be used in step b) belong to the following formulas (II), (III), (IV) or (V):



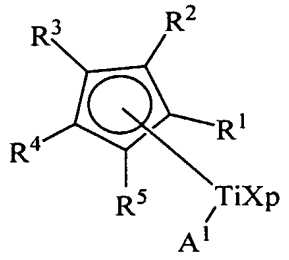
(II)



(III)



(IV)



(V)

wherein

Ti is titanium;

the substituents X, equal to or different from each other, are monoanionic sigma ligands selected from the group consisting of hydrogen, halogen, R^6, OR^6, $OCOR^6$, SR^6, NR^6_2 and PR^6_2, wherein R^6 is a hydrocarbon radical containing from 1 to 20 carbon atoms optionally containing one or more Si or Ge atoms;

p is an integer ranging from 1 to 2;

L is a divalent bridging group selected from C_1-C_{20} alkylidene, C_3-C_{20} cycloalkylidene, C_6-C_{20} arylidene, C_7-C_{20} alkylarylidene, or C_7-C_{20} arylalkylidene radicals optionally

containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, and silylidene radical containing up to 5 silicon atoms

each R^1, R^2, R^3, R^4 and R^5, equal to or different from each other, is a hydrogen atom, a C_1-C_{40} hydrocarbon group optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; or two adjacent R^1, R^2, R^3, R^4 and R^5 form one or more 3-7 membered ring optional containing heteroatoms belonging to groups 13-17 of the periodic table;

A is a NR^8, O, S radical, wherein R^8 is a C_1-C_{20} hydrocarbon group optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

A^1 is a hydrogen atom, a halogen atom, R^6, OR^6, $OCOR^6$, SR^6, NR^6_2 and PR^6_2, wherein R^6 is as described above; otherwise A^1 is a NR^9 radical wherein R^9 is a C_1-C_{40} hydrocarbon group optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

8. A process for (co)polymerizing olefins containing from 2 to 20 carbon atoms comprising contacting one or more of said olefins under polymerization conditions in the presence of the catalyst system of claims 1-7.
9. The process according to claim 8 wherein one or more alpha-olefins are (co)polymerized.
10. The process according to claim 9 wherein said alpha olefins are propylene, ethylene, 1-butene, 1-hexene and 1-octene.